

National Aeronautics and  
Space Administration

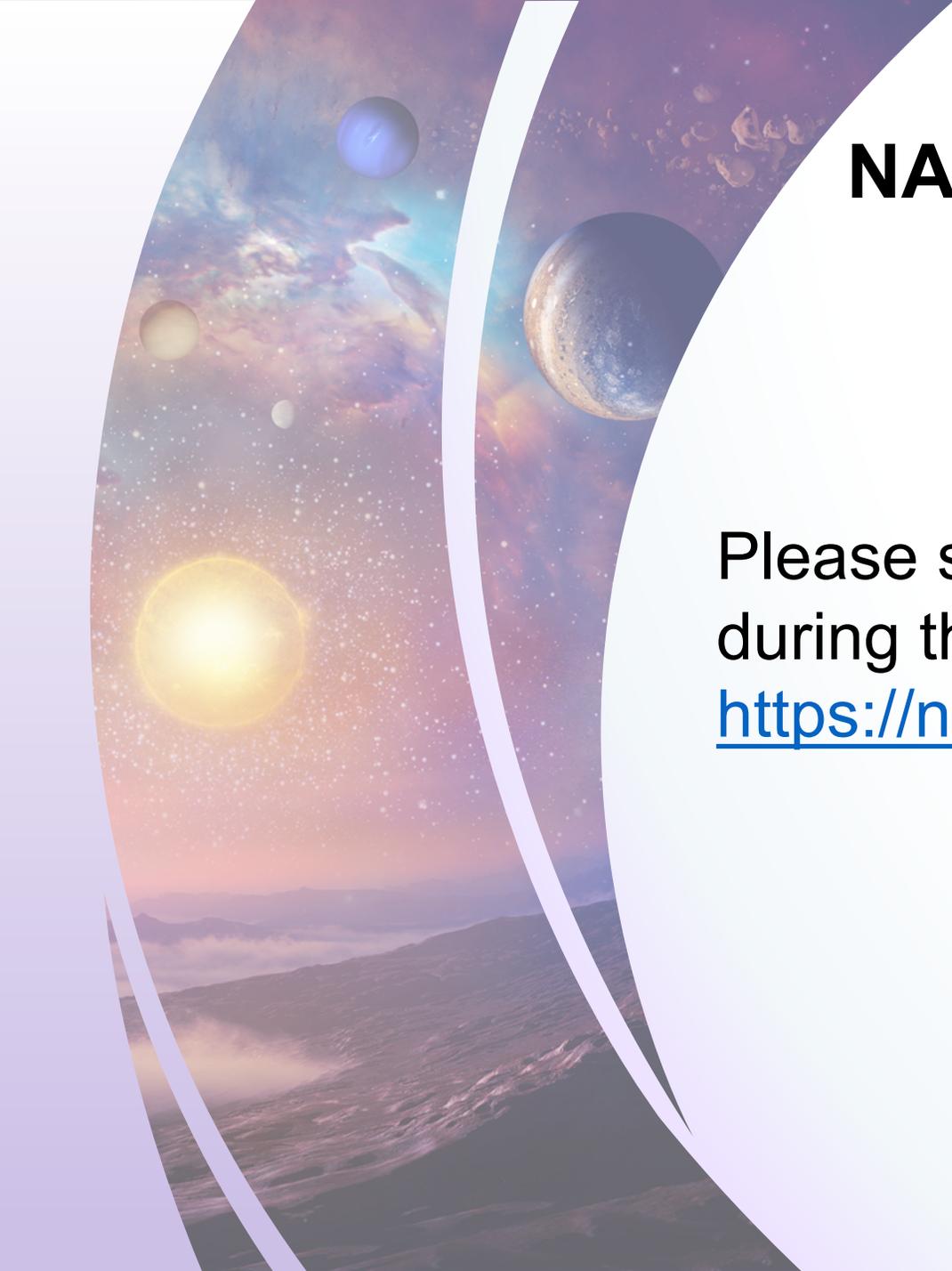


# EXPLORE SOLAR SYSTEM & BEYOND

## 2021 Astrophysics Theory Program Information Session

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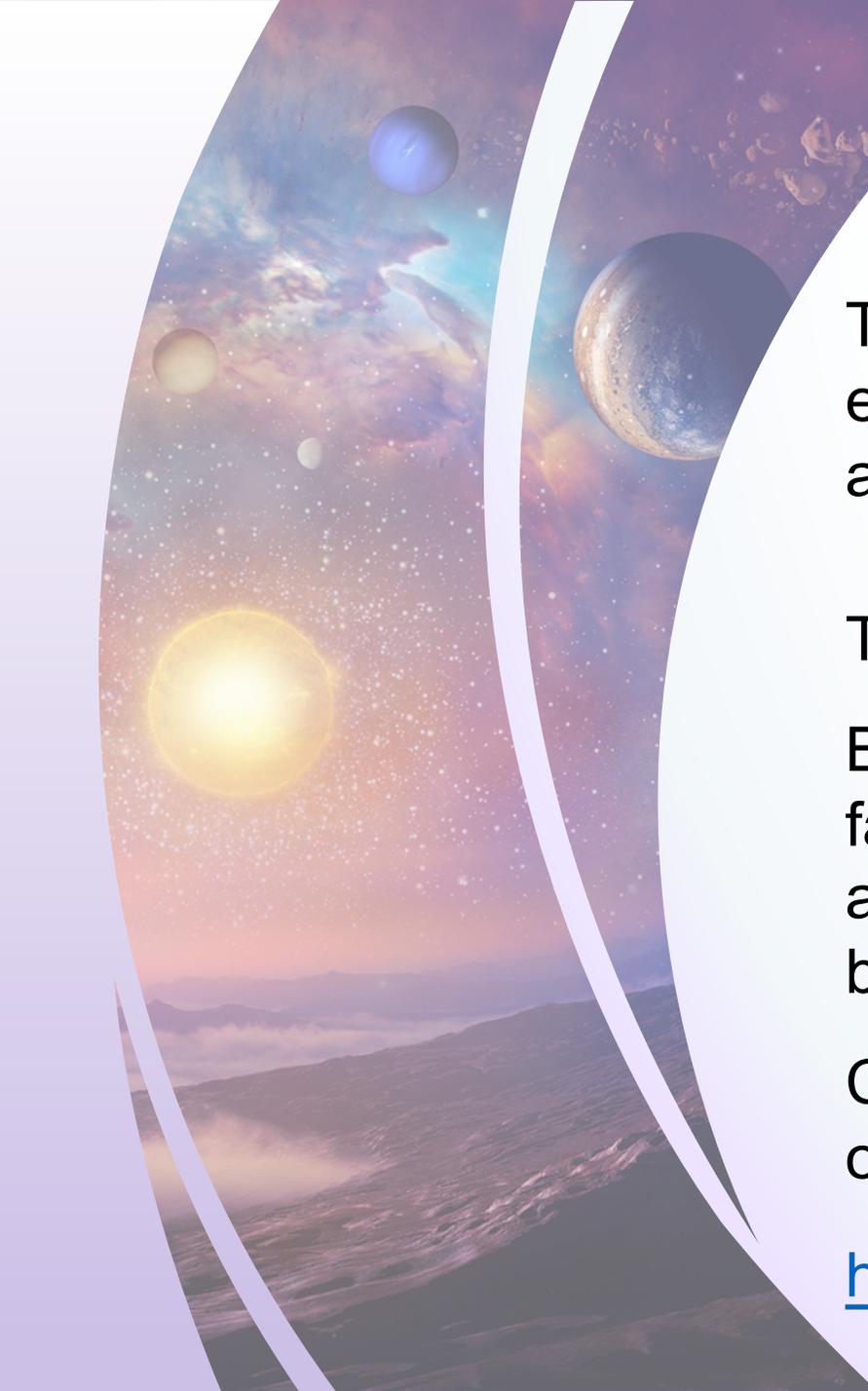
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# NASA Astrophysics Theory Program

Please submit (or upvote) any questions you have during this presentation via the following link

<https://nasa.cnf.io/sessions/hwvr/#!/dashboard>



# NASA Astrophysics Theory Program

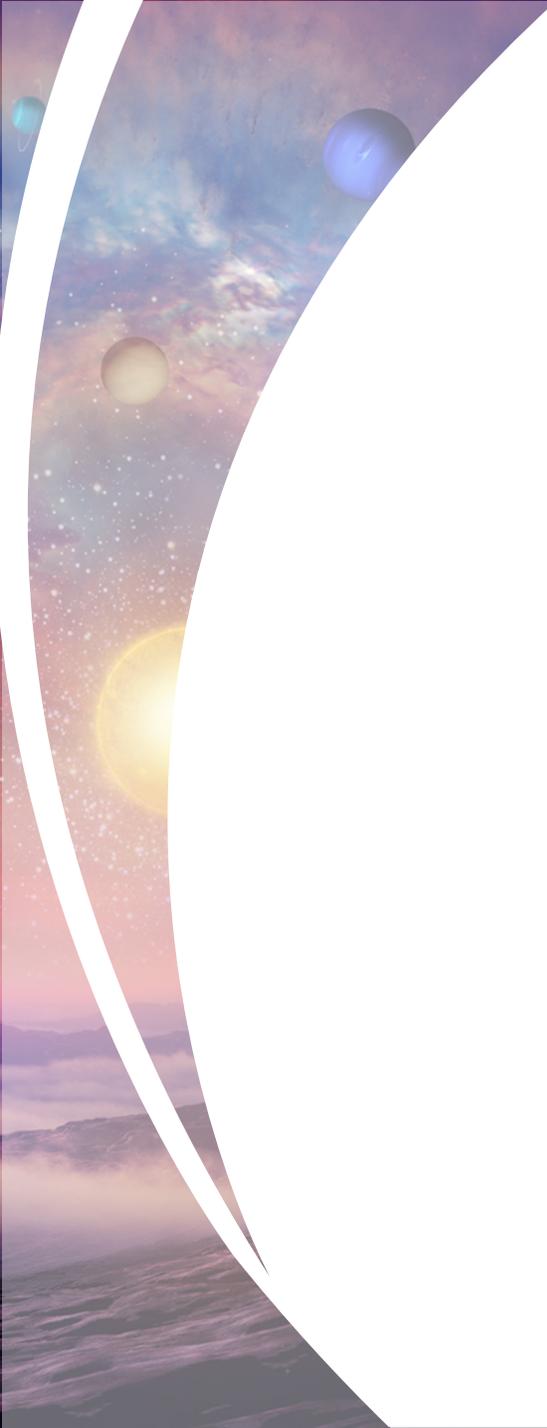
The Astrophysics Theory Program (ATP) supports NASA's efforts to develop the basic theory for NASA's space astrophysics programs.

The proposed work must both:

Be **directly relevant to space astrophysics goals** by facilitating the interpretation of data from space astrophysics missions or by leading to predictions that can be tested with space astrophysics observations; and

Consist **predominantly of theoretical astrophysics studies** or the development of theoretical astrophysics models.

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# **Special Considerations for ATP 2021:**

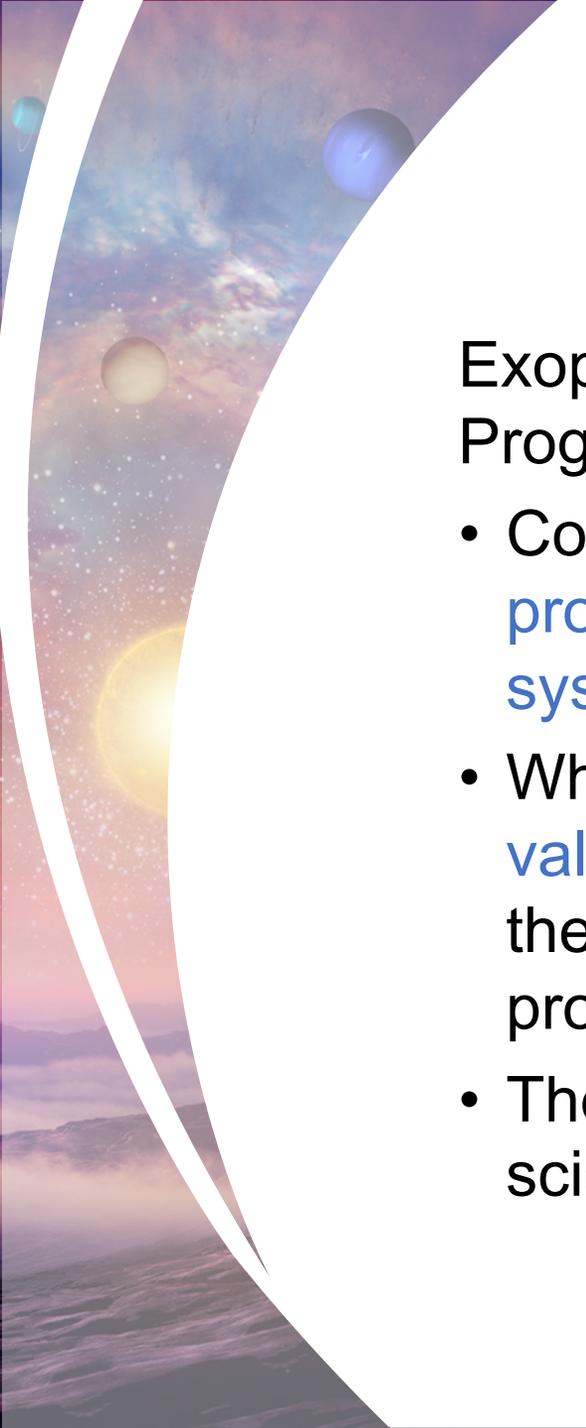
**Exoplanet Consolidation**

**Data Management Plan**

**Dual Anonymous Peer Review**

**Inclusion Plan Pilot Program**

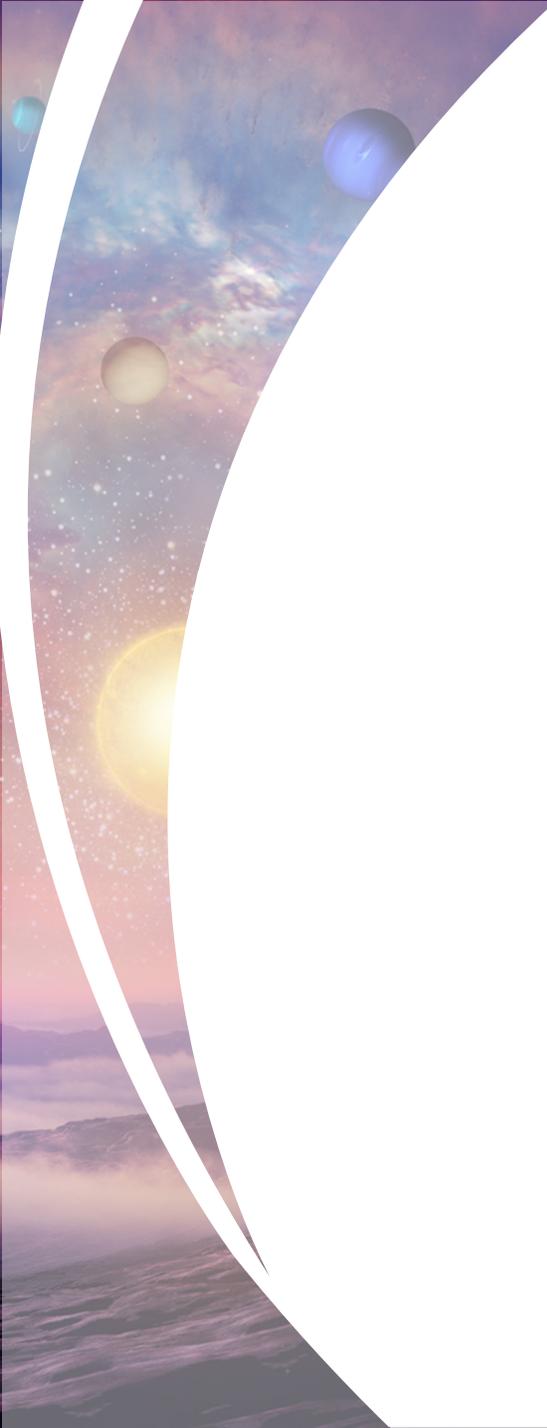
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# Special Considerations for ATP 2021: Exoplanet Consolidation

Exoplanet-related science has moved to the Exoplanet Research Program (XRP) under ROSES 2020.

- Consequently, theory investigations that are focused on protoplanetary and debris disks, exoplanets, and exoplanetary systems are now excluded from the scope of ATP.
- While it is not a weakness for an ATP-proposed investigation to have value for exoplanet science, that value is now outside of the scope of the program and is not be considered in the merit evaluation of the proposal.
- The onus is on the proposer to make a clear case that exoplanet science is not the primary objective of the investigation.



# Special Considerations for ATP 2021:

**Exoplanet Consolidation**

**Data Management Plan**

**Dual Anonymous Peer Review**

**Inclusion Plan Pilot Program**

<https://nasa.cnf.io/sessions/hwwr/#!/dashboard>

# Special Considerations for ATP 2021: Data Management Plan

ATP proposals require a data management plan (DMP) or an explanation of why one is not necessary given the nature of the work.

- The DMP should describe whether and how data generated through the course of the proposed research will be shared and preserved, or why data sharing and/or preservation are not possible or scientifically appropriate.
- DMPs must provide a plan for making research data that underlie the results in peer-reviewed publications digitally accessible at the time of publication or within a reasonable time period after publication. This requirement could be met by including the data as supplementary information to the published article, through NASA archives, or other means.

See D.1 [Astrophysics Research Program Overview](https://science.nasa.gov/researchers/sara/faqs/dmp-faq-roses/) and <https://science.nasa.gov/researchers/sara/faqs/dmp-faq-roses/>

# Proposal Evaluation Criteria

## **Intrinsic Scientific/Technical Merit**

The overall scientific quality of the proposed project, including the scientific rationale and the expected significance and/or impact of the proposed work;

Overall technical quality of the proposed work, including, but not limited to, the effectiveness and resilience of the proposed methods, techniques, and approaches for achieving the proposed goals and/or objectives, and the quality of the management plan and project timeline for carrying out the work;

**The sufficiency and appropriateness of the Data Management Plan**

# Proposal Evaluation Criteria

## Relevance to NASA missions:

Does the proposed investigation

Facilitate the interpretation of data from space astrophysics missions?

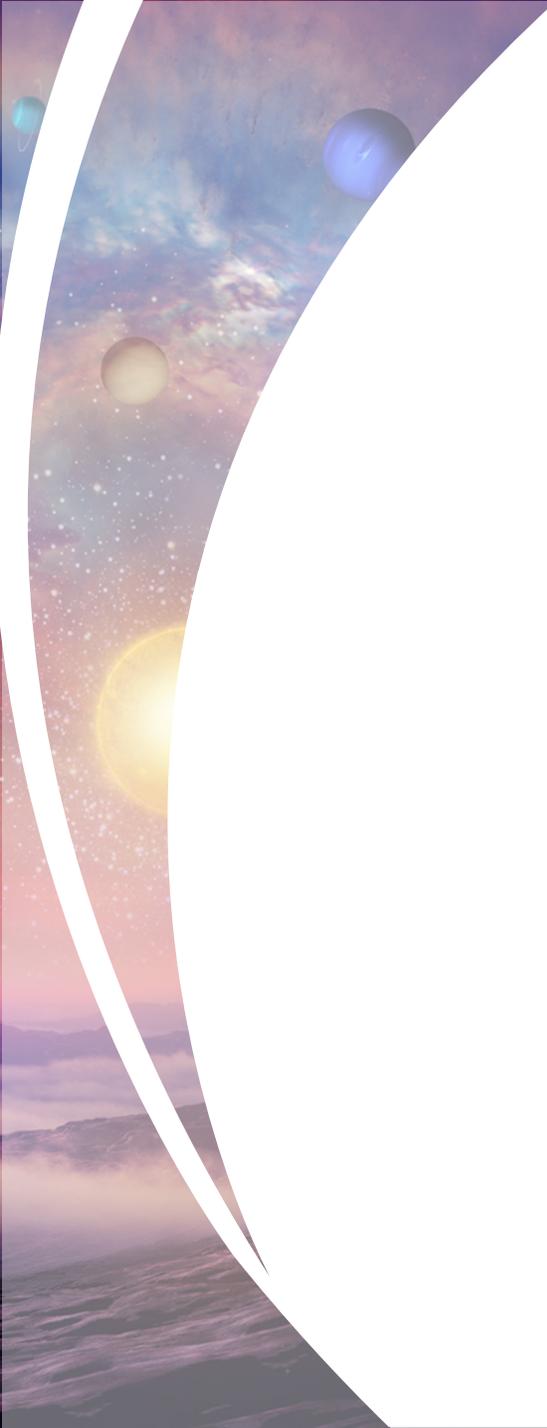
Lead to predictions that can be tested with space astrophysics observations?

## Cost Reasonableness

Are the proposed work effort, proposed resources such as NASA High-End Computing (HEC) , and the proposed purchases, travel, publications, etc. appropriate to accomplish the goals of the proposal?

Is the duration appropriately justified?

**All information regarding salaries and overhead rates is redacted from reviewer materials.**



# Special Considerations for ATP 2021:

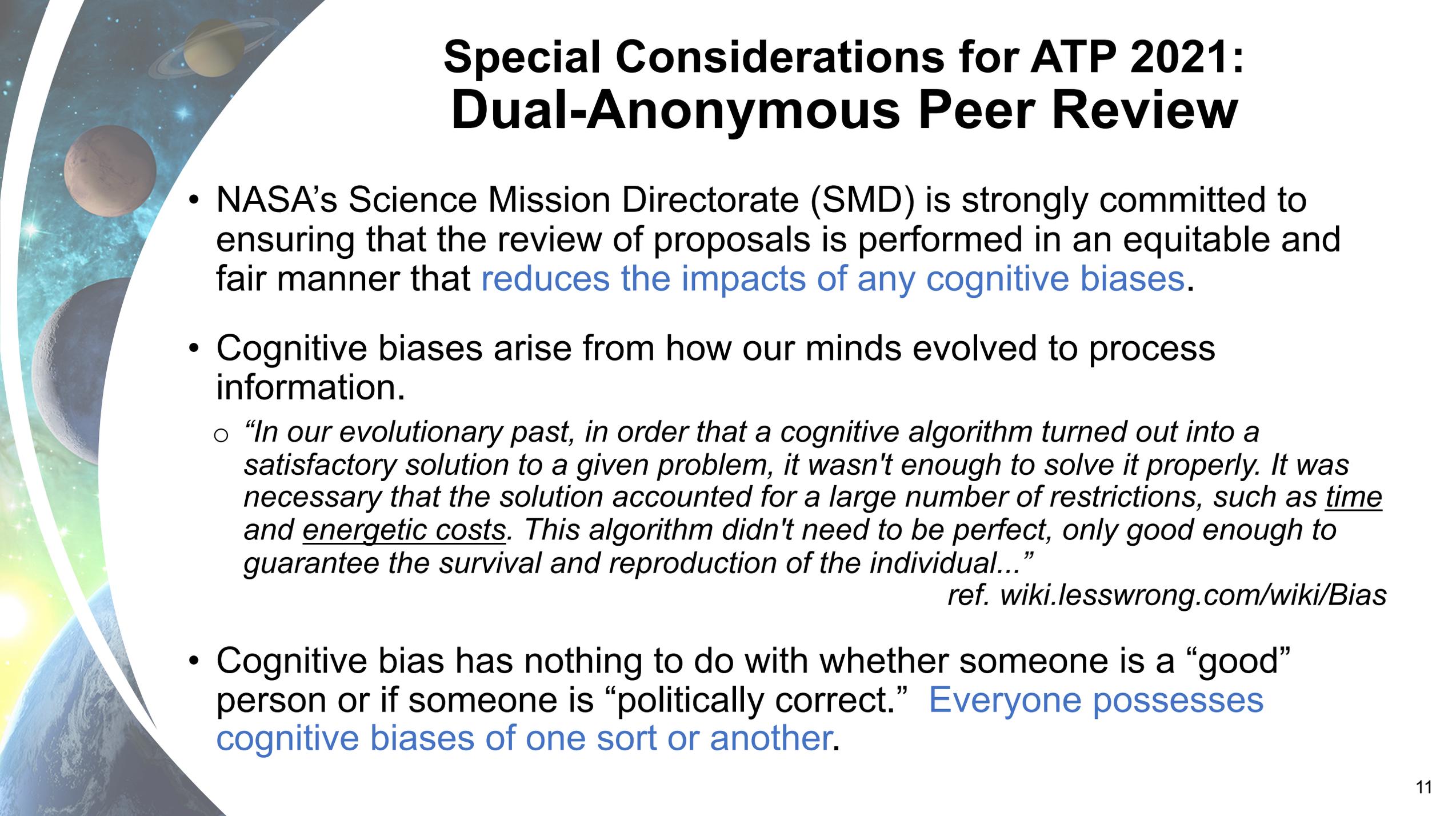
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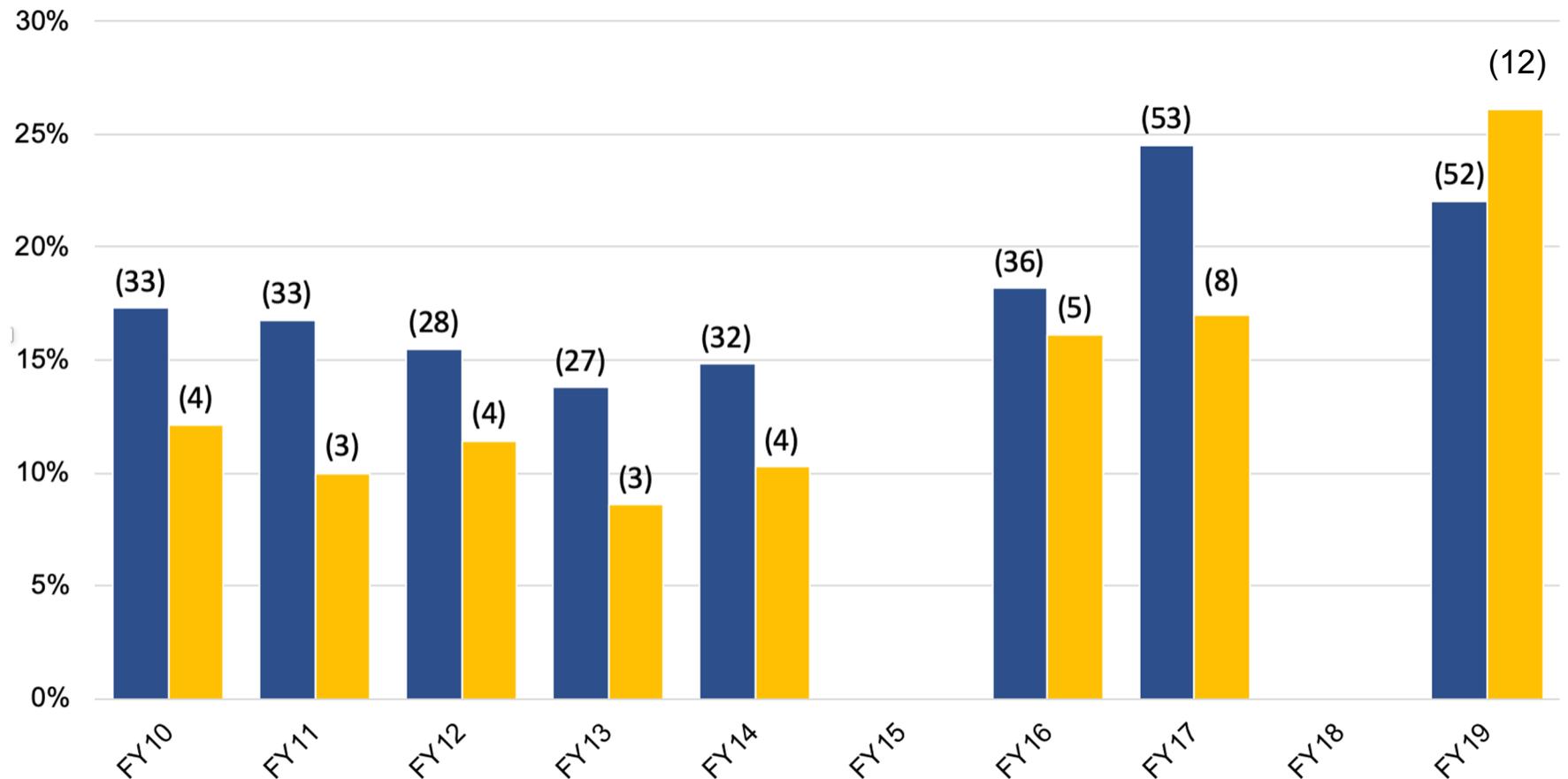
# Special Considerations for ATP 2021: Dual-Anonymous Peer Review

- NASA’s Science Mission Directorate (SMD) is strongly committed to ensuring that the review of proposals is performed in an equitable and fair manner that **reduces the impacts of any cognitive biases**.
- Cognitive biases arise from how our minds evolved to process information.
  - *“In our evolutionary past, in order that a cognitive algorithm turned out into a satisfactory solution to a given problem, it wasn't enough to solve it properly. It was necessary that the solution accounted for a large number of restrictions, such as time and energetic costs. This algorithm didn't need to be perfect, only good enough to guarantee the survival and reproduction of the individual...”*  
*ref. [wiki.lesswrong.com/wiki/Bias](http://wiki.lesswrong.com/wiki/Bias)*
- Cognitive bias has nothing to do with whether someone is a “good” person or if someone is “politically correct.” **Everyone possesses cognitive biases of one sort or another.**

# Dual-Anonymous Peer Review

% (number) of selected proposals by inferred gender for the Astrophysics theory program

Overall  
Female PIs



# Dual-Anonymous Peer Review

Under Dual-Anonymous Peer Review, not only are proposers unaware of the identity of the members on the review panel, but the reviewers do not have explicit knowledge of the identities of the proposing team.

- The primary intent of dual-anonymous peer review is to eliminate “the team” as a topic during the scientific evaluation of a proposal, *not to make it absolutely impossible to guess who might be on that team.*
- This creates a shift in the tenor of discussions, away from the individuals, and towards a discussion of the scientific merit of a proposal.

<https://science.nasa.gov/researchers/dual-anonymous-peer-review>

# Submission of Anonymized Proposals



Exclude names and affiliations of the proposing team, including in figures and references to personal websites.



Do not claim ownership of past work, e.g., “my previously funded work...” or “our analysis shown in Baker et al. 2012...”



Cite references in the passive third person, e.g., “Prior analysis [1] indicates that ...”.



Do describe the work proposed, e.g., “We propose to do the following...” or “We will measure the effects of...”



Include a separate not-anonymized “Expertise and Resources” document.

# How Do I Reference Unpublished Work?

## How Do I Reference Proprietary Simulation Codes?



It may be occasionally important to cite exclusive access datasets, non-public software, unpublished data, or findings that have been presented in public before but are not citeable



Each of these may reveal (or strongly imply) the investigators on the proposal



In these instances, proposers must use language such “obtained in private communication” or “from private consultation” when referring to such potentially identifying work



Recall that the goal of dual-anonymous is to shift the tenor of the discussion, not to make it absolutely impossible to guess the team members

# Institutional Access to Unique Resources

Another common situation is when a team member has institutional access to unique facilities that are required to accomplish the proposed work. An anonymized proposal does not prohibit stating this fact in the Scientific/Technical/Management section; however, it must be written in a way that does not identify the team member. For example:

*“The team has access to telescope time on the W. M. Keck Observatory, which will enable spectroscopic follow-up of the galaxies in the sample.”*

Note: in this situation, NASA recommends that the team provide detailed supporting information to validate the claim in the “Expertise and Resources – Not Anonymized” document.

# Example of Anonymization

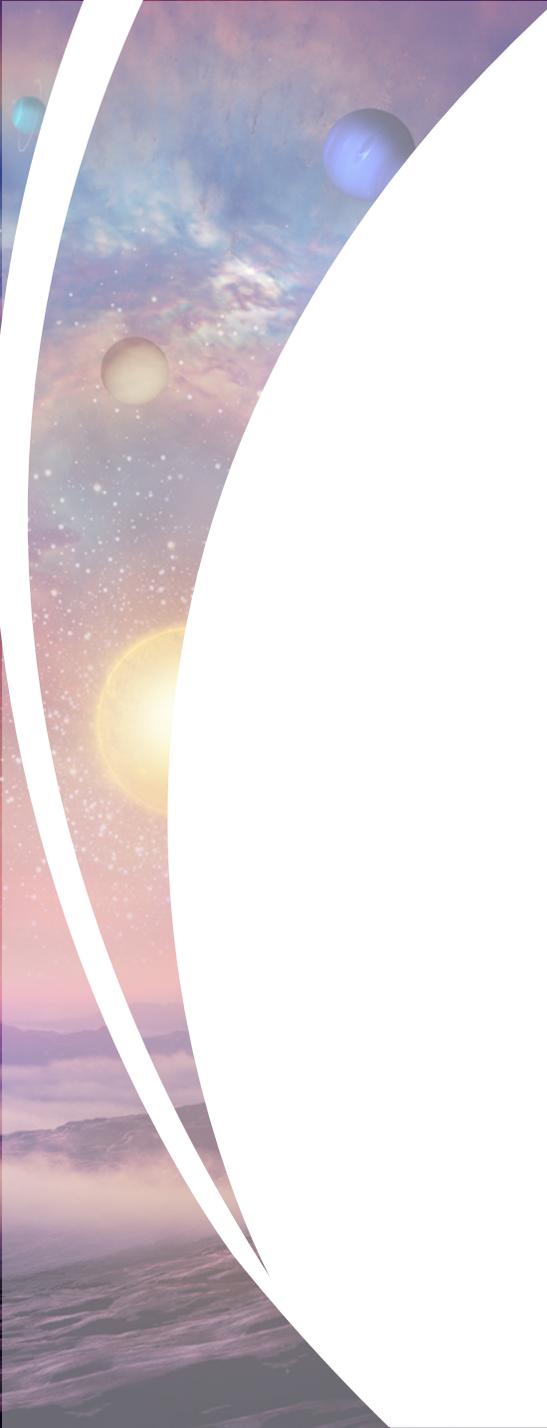
*In Rogers et al. (2014), we concluded that the best explanation for the dynamics of the shockwave and the spectra from both the forward-shocked ISM and the reverse-shocked ejecta is that a Type Ia supernova exploded into a preexisting wind-blown cavity. This object is the only known example of such a phenomenon, and it thus provides a unique opportunity to illuminate the nature of Type Ia supernovae and the progenitors. If our model from Rogers et al. (2014) is correct, then the single-degenerate channel for SNe Ia production must exist. We propose here for a second epoch of observations which we will compare with our first epoch obtained in 2007 to measure the proper motion of the shock wave.*

Here is the same text, again re-worked following the anonymizing guidelines:

*Prior work [12] concluded that the best explanation for the dynamics of the shockwave and the spectra from both the forward-shocked ISM and the reverse-shocked ejecta is that a Type Ia supernova exploded into a preexisting wind-blown cavity. This object is the only known example of such a phenomenon, and it thus provides a unique opportunity to illuminate the nature of Type Ia supernovae and the progenitors. If the model from [12] is correct, then the single-degenerate channel for SNe Ia production must exist. We propose here for a second epoch of observations which we will compare with a first epoch obtained in 2007 to measure the proper motion of the shock wave.*

# The Expertise and Resources Document





# **Special Considerations for ATP 2021:**

**Exoplanet Consolidation**

**Data Management Plan**

**Dual Anonymous Peer Review**

**Inclusion Plan Pilot Program**

<https://nasa.cnf.io/sessions/hwwr/#!/dashboard>

# Special Considerations for ATP 2021: ATP Inclusion Criterion Pilot Program

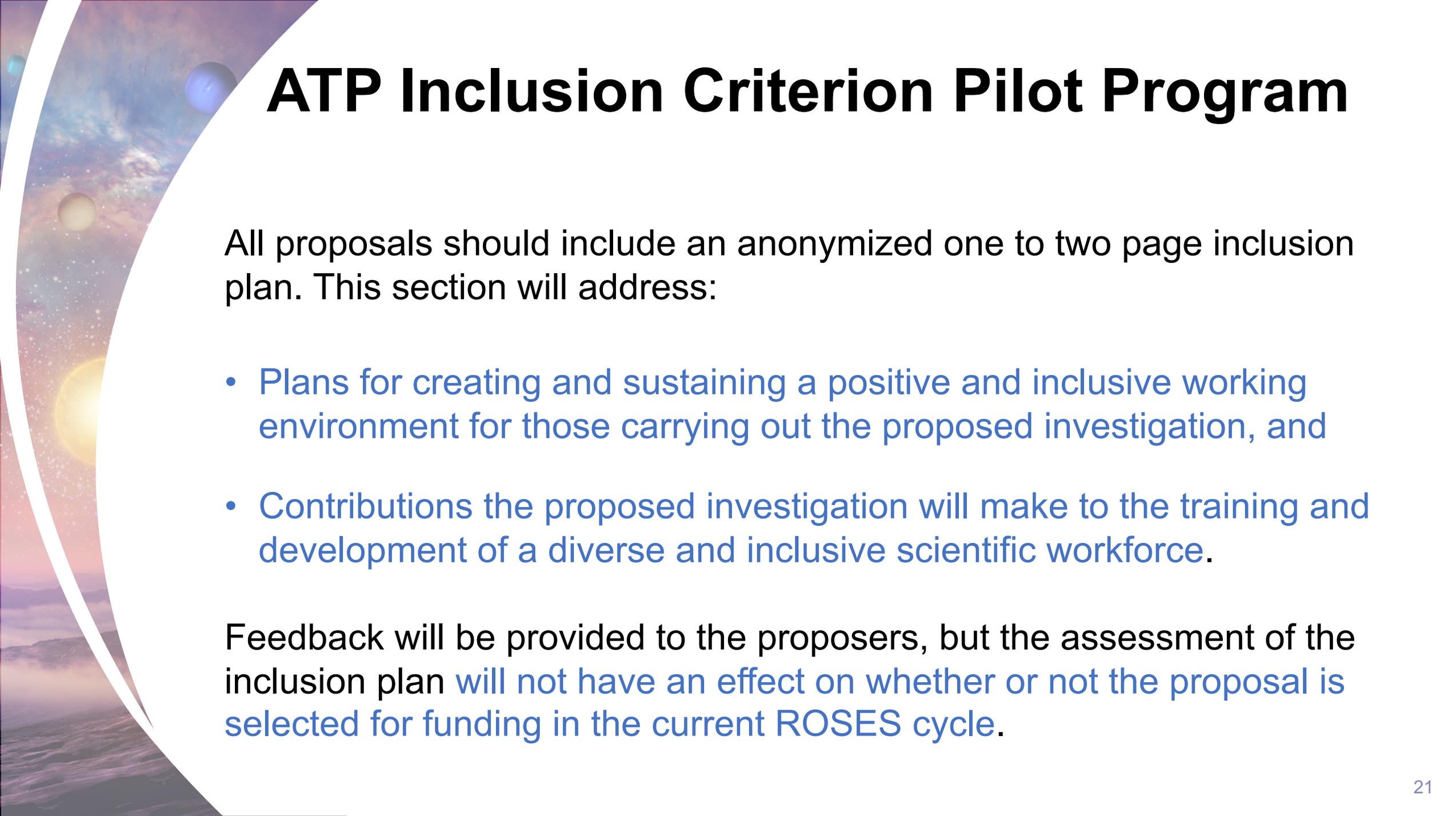


**Inclusion** – NASA is committed to a culture of diversity, inclusion, and equity, where all employees feel welcome, respected, and engaged. To achieve the greatest mission success, NASA embraces hiring, developing, and growing a diverse and inclusive workforce in a positive and safe work environment where individuals can be authentic. This value will enable NASA to attract the best talent, grow the capabilities of the entire workforce, and empower everyone to fully contribute.



Strategy 4.1: Increase the diversity of thought and backgrounds represented across the entire SMD portfolio through a more inclusive and accessible environment.

ROSES: SMD's goals are to develop a workforce and scientific community that reflects the diversity of the country and to instill a culture of inclusion across its entire portfolio.



# ATP Inclusion Criterion Pilot Program

All proposals should include an anonymized one to two page inclusion plan. This section will address:

- Plans for creating and sustaining a positive and inclusive working environment for those carrying out the proposed investigation, and
- Contributions the proposed investigation will make to the training and development of a diverse and inclusive scientific workforce.

Feedback will be provided to the proposers, but the assessment of the inclusion plan will not have an effect on whether or not the proposal is selected for funding in the current ROSES cycle.

# ATP Inclusion Criterion Pilot Program

The inclusion plan will be evaluated including the following factors:

Does the inclusion plan adequately communicate the goal of a positive and inclusive working environment for the investigation team?

Does the inclusion plan provide adequate processes for creating and sustaining a positive and inclusive working environment for the investigation team?

Are these processes likely to be successful in achieving the goal?

Does the inclusion plan adequately describe the contribution of the proposed investigation to the training and development of a diverse and inclusive workforce?

Does the inclusion plan provide an adequate plan for achieving the identified contribution?

Is the plan likely to be successful in realizing the identified contribution?

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# ATP Inclusion Criterion Pilot Program

**Discussion of inclusion plans seems difficult if institutional affiliations and resources cannot be revealed?**

An anonymized proposal does not prohibit stating a team has access to unique facilities that are required to accomplish the proposed work, however, the proposal must be written in a way that does not identify the team member.

**Do you have any resources available for me to consider when writing the Inclusion Plan?**

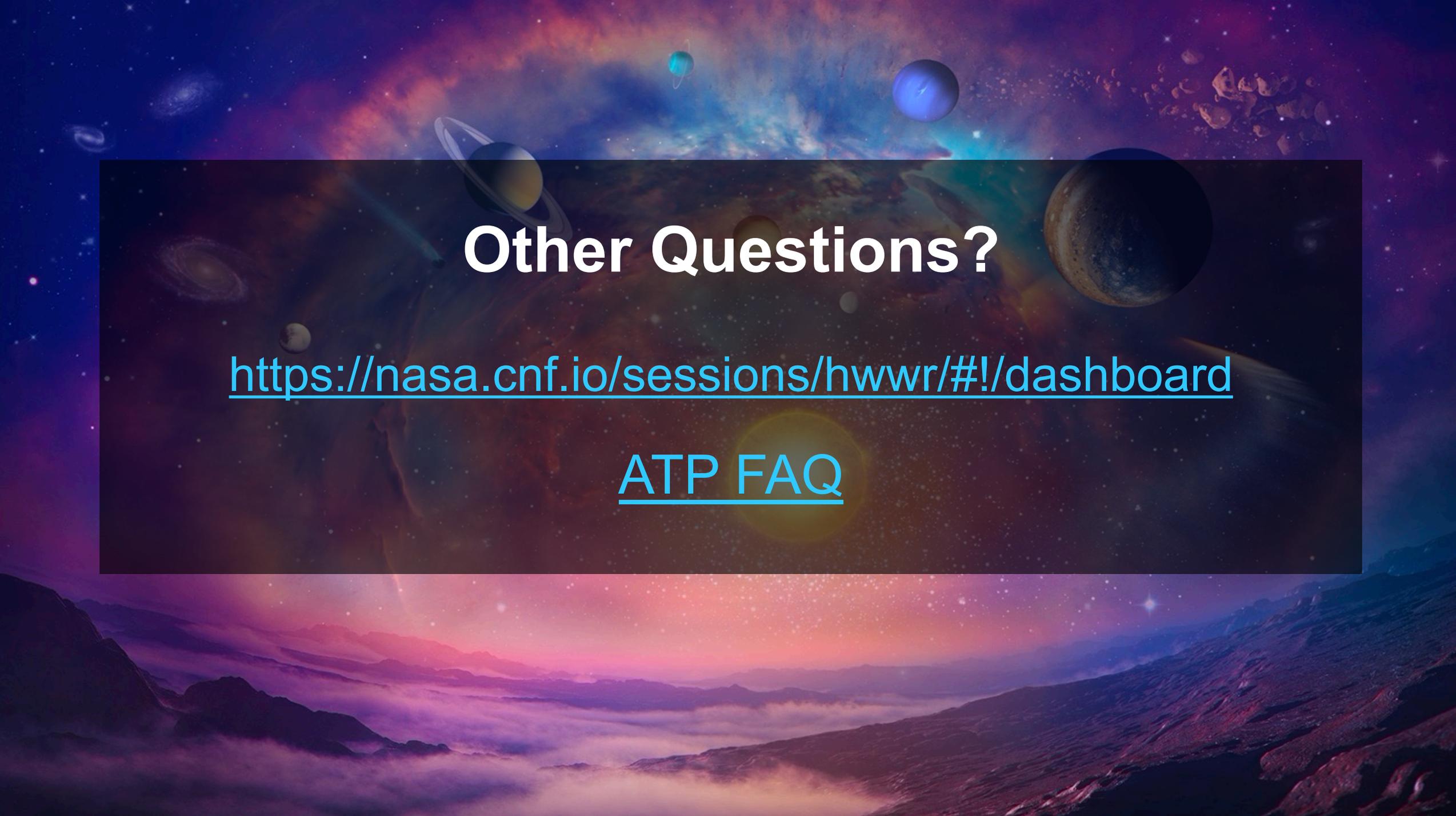
Some resources that may be useful when formulating an inclusion plan include: [NASA's webpage of resources on Diversity and Inclusion](#), [The final report of the AAS Task Force on Diversity and Inclusion in Astronomy Graduate Education](#), and [The Report from the AIP National Task Force to Elevate African American Representation in Undergraduate Physics & Astronomy](#).

# ATP Questions

**Is it possible to submit linked collaborative proposals to ATP, or do we have to submit as a lead institution with subawards?**

No, but there can be "Co-I/Institutional PIs."

A Co-I at an organization other than that of the PI institution who is making a major contribution to the proposal (e.g., providing a significant piece of hardware) and who serves as the point of contact at that Co-I's organization, may also be designated as the "Institutional PI" for that Co-I's organization. If stated explicitly in the NOFO, NASA may elect to provide a separate award directly to the organization of the Co-I. In this case, the Co-I will serve as the "PI" for this separate award for their organization.



# Other Questions?

<https://nasa.cnf.io/sessions/hwwr/#!/dashboard>

[ATP FAQ](#)